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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,941	12/15/2003	Manoj K. Bhattacharyya	10014277-2	3729

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EXAMINER

TSAI, H JEY

ART UNIT PAPER NUMBER

2812

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/735,941

Applicant(s)

BHATTACHARYYA ET AL.

Examiner

H.Jey Tsai

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13, 19, 23-24, 28, 30-38 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Tuttle 6,625,040, previously applied.

Tuttle '040 discloses a method for shielding a magnetic random access memory module from stray magnetic fields, comprising:

attaching a layer of electrically insulating material 20 (a resin, col. 4, lines 1-12,) adjacent a first side of magnetic memory array 12 in the memory module, fig. 1-4, col. 2, lines 40-67,

attaching a layer of permeable metal 22 or 33 or 55 over the insulating material (resin) 20 of first side of the magnetic memory array 12 (layer 22 can be formed over top surface 18 of layer 20, col. 3, lines 57-63), col. 3, lines 1-67, fig. 3-4

attaching a layer of permeable metal 55 or 22 over the insulating material 20 of second side of the magnetic memory array 12,

wherein the layer of insulating layer 20 and layer of permeable metal 55 or 22 or 33 are positioned within memory module, note: layer 22 or 33 is a part of module, hence, layer 22 or 33 is within the module, in particular, a few atomic mono-layers of inner surface of layer 22 or 33 is sufficient to shield to magnetic field,

permeable metal magnetic shield is a soft magnetic material of iron and nickel alloy, para. 4, 30.

Claims 13, 19, 22-24, 28, 30-38 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kitada et al. 5,337,203, previously applied.

Kitada discloses a method for shielding a magnetic memory module (col. 4, lines 55-57) from stray magnetic fields, comprising:

attaching a layer of electrically insulating material 5, 11 adjacent a first side of magnetic memory array 6, 7, 8, 9 in the memory module, fig. 7, col. 16, line 23 to col. 7, line 67,

attaching a layer of permeable metal 12 over the insulating material 11 of first side of the magnetic memory array, fig. 7,

attaching a layer of permeable metal 4 over the insulating material 5 of second side of the magnetic memory array, fig. 7,

sputtering the permeable metal magnetic shield material, col. 16, lines 40-43, col. 23, lines 48-55,

permeable metal magnetic shield is a soft magnetic material of iron and nickel alloy, col. 22, lines 31-35, col. 23, lines 48-55,

heat treating (annealing) the permeable metal NiFe, col. 6, lines 56-65, col. 10, lines 54-60.

Note: The intended use clause of using magnetic memory device as random access magnetic memory module differs from prior art of magnetic memory module only its claimed intended use. However, the manner or method of use of a machine isn't germane to the patentability of the machine and process of making itself. A statement of

intended use does not distinguish the process of making and structural apparatus claimed over the prior art ref. Ex parte Cullis, 11 USPQ2d 1876 (BPPAI 1989).

Claims 13, 19, 23-24, 30-38 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tuttle 2002/0105058, previously applied

Tuttle '058 discloses a method for shielding a magnetic memory module from stray magnetic fields, comprising:

attaching a layer of electrically insulating material 140/160 adjacent a first side of magnetic memory array in the memory module 102, fig. 6, para 21-25, ,

attaching a layer of permeable metal 113 over the insulating material 140/160 of first side of the magnetic memory array 300, fig. 6,

attaching a layer of permeable metal 110 over the insulating material (glass) of second side of the magnetic memory array, fig. 6,

wherein the layer of insulating layer 140/160 and layer of permeable metal 113, 110 are positioned within memory module 102, note: layer 110 is a part of module 102, hence, layer 110 is within the module, in particular, a few atomic mono-layers of inner surface of layer 110 is sufficient to shield to magnetic field,

permeable metal magnetic shield 113 is a soft magnetic material of iron and nickel alloy, para. 31.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tuttle et al., 6,625,040 in view of Shimada et al. 4,641,213, previously applied.

The reference(s) teach the features:

Tuttle discloses a method for shielding a magnetic random access memory module from stray magnetic fields, comprising:

attaching a layer of electrically insulating material 20 (a resin, col. 4, lines 1-12,) adjacent a first side of magnetic memory array 12 in the memory module, fig. 1-4, col. 2, lines 40-67,

attaching a layer of permeable metal 22 or 33 or 55 over the insulating material (resin) 20 of first side of the magnetic memory array 12 (layer 22 can be formed over top surface 18 of layer 20, col. 3, lines 57-63), col. 3, lines 1-67, fig. 3-4

attaching a layer of permeable metal 55 or 22 over the insulating material 20 of second side of the magnetic memory array 12,

wherein the layer of insulating layer 20 and layer of permeable metal 55 or 22 or 33 are positioned within memory module, note: layer 22 or 33 is a part of module, hence, layer 22 or 33 is within the module, in particular, the few atomic mono-layers of inner surface of layer 22 or 33 is sufficient to shield to magnetic field,

permeable metal magnetic shield is a soft magnetic material of iron and nickel alloy, para. 4, 30.

The difference between the reference(s) and the claims are as follows: Tuttle et al. '040 teaches forming a magnetic shield over a MRAM module but does not teaching using sputtering method and annealing in the rotating magnetic field. However, Shimada et al. teaches at col. 4, lines 23-39, col. 5, lines 30-45 that sputtering a magnetic shield 16 material and annealing under rotating magnetic field to reduce the anisotropic magnetic field to isotropic magnetic field.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references' teachings by sputtering a magnetic shield material and annealing under rotating magnetic field as taught by Shimada et al. so that the anisotropic magnetic field is changed to isotropic magnetic field.

Claims 14-18, 20, 25-27, 29 stand rejected under 35 U.S.C 103 as being unpatentable over Tuttle '040 as applied to claims 13, 19-20, 23-24, 28, 30-38 above, and further in view of Shimada et al. 4,641,213 and Durcan et al. 2002/0160541, previously applied.

The difference between the references applied above and the instant claim(s) is: Tuttle et al. '040 teaches forming a magnetic shield over a MRAM module but does not teaching using sputtering method and annealing in the rotating magnetic field and the structure of MRAM. However, Shimada et al. teaches at col. 4, lines 23-39, col. 5, lines 30-45 that sputtering a magnetic shield 16 material and annealing under rotating magnetic field to reduce the anisotropic magnetic field to isotropic magnetic field. And, Durcan et al. teaches at para. 51, a pinned layer 91, a sensor layer 92. And, specific permeability of a permeable metal as claimed are taken to be obvious since these are variables of art recognized importance which are subject to routine experimentation and optimization and discovery of an optimum value for a known process is obvious. In re

Aller, 105 USPQ 233 (CCPA 1955). And, even if applicants' modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art, In Re Sola 25 USPQ 433.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references' teachings by sputtering a magnetic shield material and annealing under rotating magnetic field and using a MRAM having a pinned layer, sense layer and a dielectric layer as taught by Shimada et al. and Durcan so that the anisotropic magnetic field is changed to isotropic magnetic field.

Claims 14-18, 20, 25-27, 29 rejected under 35 U.S.C 103 as being unpatentable over Kitada as applied to claims 13, 19-20, 23-24, 28, 30-38 above, and further in view of Shimada et al. 4,641,213 and Durcan et al. 2002/0160541, previously applied.

The difference between the references applied above and the instant claim(s) is: Kitada et al. teaches forming a magnetic shield over a MRAM module but does not teaching using sputtering method and annealing in the rotating magnetic field and the structure of MRAM. However, Shimada et al. teaches at col. 4, lines 23-39, col. 5, lines 30-45 that sputtering a magnetic shield 16 material and annealing under rotating magnetic field to reduce the anisotropic magnetic field to isotropic magnetic field. And, Durcan et al. teaches at para. 51, a pinned layer 91, a sensor layer 92. And, specific permeability of a permeable metal as claimed are taken to be obvious since these are variables of art recognized importance which are subject to routine experimentation and optimization and discovery of an optimum value for a known process is obvious. In re Aller, 105 USPQ 233 (CCPA 1955). And, even if applicants' modification results in great improvement and utility over the prior art, it may still not be patentable if the



modification was within the capabilities of one skilled in the art, In Re Sola 25 USPQ 433.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references' teachings by sputtering a magnetic shield material and annealing under rotating magnetic field and using a MRAM having a pinned layer, sense layer and a dielectric layer as taught by Shimada et al. and Durcan so that the anisotropic magnetic field is changed to isotropic magnetic field.

Claims 14-18, 20, 25-27, 28, 29 rejected under 35 U.S.C 103 as being unpatentable over Tuttle '058 as applied to claims 13, 19, 23-24, 30-38 above, and further in view of Shimada et al. 4,641,213 and Durcan et al. 2002/0160541, previously applied.

The difference between the references applied above and the instant claim(s) is: Tuttle '058 teaches forming a magnetic shield over a MRAM module but does not teaching using sputtering method and annealing in the rotating magnetic field and the structure of MRAM. However, Shimada et al. teaches at col. 4, lines 23-39, col. 5, lines 30-45 that sputtering a magnetic shield material and annealing under rotating magnetic field to reduce the anisotropic magnetic field to isotropic magnetic field. And, Durcan et al. teaches at para. 51, a pinned layer 91, a sensor layer 92. And, specific permeability of a permeable metal as claimed are taken to be obvious since these are variables of art recognized importance which are subject to routine experimentation and optimization and discovery of an optimum value for a known process is obvious. In re Aller, 105 USPQ 233 (CCPA 1955). And, even if applicants' modification results in great improvement and utility over the prior art, it may still not be patentable if the

modification was within the capabilities of one skilled in the art, In Re Sola 25 USPQ 433.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the above references' teachings by sputtering a magnetic shield material and annealing under rotating magnetic field and using a MRAM having a pinned layer, sense layer and a dielectric layer as taught by Shimada et al. and Durcan so that the anisotropic magnetic field is changed to isotropic magnetic field.

### ***Conclusions***

Applicant's arguments filed June 11, 2006 have been fully considered but they are not persuasive. Because Tuttle '040 clearly teaches the layer of insulating layer 20 and layer of permeable metal 55 or 22 or 33 are positioned within memory module, note: layer 22 or 33 is a part of module, hence, layer 22 or 33 is within the module, in particular, the few atomic mono-layers of inner surface of layer 22 or 33 is sufficient to shield to magnetic field (see any basic physics text book). Tuttle '058 also clearly teaches the layer of insulating layer 140/160 and layer of permeable metal 113, 110 are positioned within memory module 102, note: layer 110 is a part of module 102, hence, layer 110 is within the module, in particular, a few atomic mono-layers of inner surface of layer 110 is sufficient to shield to magnetic field. Applicant contends that Tuttle '058 teaches two separate modules, a semiconductor chip 300 and carrier 200. This is not found persuasive because Tuttle '058 teaches at fig. 6, a single module 102 consisting of chip 300 and carrier 200. Kitada et al. clearly teaches a magnetic memory module

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see col. 4, lines 55-57. And, the intended use clause of using magnetic memory device as random access magnetic memory module differs from prior art of magnetic memory module only its claimed intended use. However, the manner or method of use of a machine isn't germane to the patentability of the machine and process of making itself. A statement of intended use does not distinguish the process of making and structural apparatus claimed over the prior art ref. Ex parte Cullis, 11 USPQ2d 1876 (BPPAI 1989).

Any inquiry of a general nature or clerical matters or relating to the status of this application or proceeding should be directed to the customer service whose telephone number is (703) 308-4357.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. Jey Tsai whose telephone number is (571) 272-1684. The examiner can normally be reached on from 7:00 Am to 4:00 Pm., Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873.

The fax phone number for this Group is (703) 872-9306.

hjt

8/9/2006



H. Jey Tsai  
Primary Examiner  
Patent Examining Group 2800